AMENDMENTS TO THE CLAIMS

Please amend claims 1, 12, 13, 15, 18, 21, 24 and 30, such that the status of the claims is as follows:

1. (Currently Amended) A method for determining anisotropy field distribution and volume distribution of a magnetic sample, the method comprising:

applying a DC magnetic field to the sample in a first direction perpendicular to an easy axis of magnetization of the sample;

applying an AC magnetic field to the sample in a second direction parallel to the easy axis of magnetization of the sample;

measuring a magneto-optic Kerr effect exhibited by the sample to produce a time-varying measurement signal; ~~and~~

separating real and imaginary components of the measurement signal; and

deriving the anisotropy field distribution and volume distribution values based upon the real and imaginary components and magnitudes of the AC and DC fields.

2. (Original) The method of claim 1 wherein the DC field is swept over a range of field strengths.

3. (Original) The method of claim 1 wherein the DC field is generated using an electromagnet.

4. (Original) The method of claim 1 wherein the AC field is controlled using a function generator.

5. (Original) The method of claim 1 wherein the AC field is generated using a Helmholtz coil.

6. (Original) The method of claim 1 wherein the real and imaginary components are separated from the measurement signal using a lock-in amplifier.

7. (Original) The method of claim 1 wherein deriving the anisotropy field distribution and volume distribution values is carried out by a computer.

8. (Original) The method of claim 1 wherein the magnetic sample is a granular thin film.

9. (Original) The method of claim 1 wherein the magnetic sample comprises magnetic nanoparticles.

10. (Original) The method of claim 1 wherein the easy axis of magnetization is perpendicular to a plane of the magnetic sample.

11. (Original) The method of claim 1 wherein the easy axis of magnetization lies in a plane of the magnetic sample.

12. (Currently Amended) The method of claim 1 wherein deriving an anisotropy field distribution and volume distribution values includes separately determining the anisotropy field distribution value and the volume distribution values based upon an differing sensitivity of an imaginary part of transverse AC susceptibility at different magnitudes of the DC magnetic field.

13. (Currently Amended) A system for determining anisotropy field distribution and volume distribution in a magnetic sample, the system comprising:

means for applying a DC magnetic field over a range of field strengths to the sample in a direction perpendicular to an easy axis of magnetization of the sample;

means for applying an AC magnetic field to the sample in a direction parallel to the easy axis of magnetization of the sample;

means for measuring a magneto-optic Kerr effect exhibited by the sample to produce a time-varying measurement signal;

means for separating real and imaginary components of the measurement signal; and

means for deriving separate anisotropy field distribution and volume distribution values based upon differing sensitivity of the imaginary component of the measurement signal to anisotropy field and volume distributions at different DC field strengths.

14. (Original) The system of claim 13 wherein the means for applying a DC field comprises an electromagnet.

15. (Currently Amended) The system of claim 13 wherein the means for applying an AC magnetic ~~AC~~ field includes an AC coil and a function generator that provides an AC drive signal to the AC coil.

16. (Original) The system of claim 13 wherein the means for separating the real and imaginary components from the measurement signal comprises a lock-in amplifier.

17. (Original) The system of claim 16 wherein the lock-in amplifier separates the real and imaginary components based upon the measurement signal and a signal from the means for applying an AC magnetic field.

18. (Currently Amended) The system of claim 13 wherein the means for deriving the anisotropy field distribution values and volume distribution values comprises a computer.

19. (Original) The system of claim 13 wherein the magnetic sample is a granular thin film.

20. (Original) The system of claim 13 wherein the magnetic sample comprises magnetic nanoparticles.

21. (Currently Amended) The system of claim 13 wherein the easy axis of magnetization ~~magnetism~~ is perpendicular to a plane of the magnetic sample.

22. (Original) The system of claim 13 wherein the easy axis of magnetization lies in a plane of the magnetic sample.

23. (Original) A method of determining anisotropy field distribution and volume distribution of a magnetic sample, the method comprising:

measuring AC transverse suseptibility of the magnetic sample by detecting a magneto-optic Kerr effect exhibited by the magnetic sample while an AC magnetic field is applied to the magnetic sample in a direction parallel to an easy axis of magnetization of the magnetic sample, and a DC magnetic field is applied over a range of field strengths to the magnetic sample in a direction perpendicular to the easy axis; and

deriving separate values of anisotropy field distribution and volume distribution based upon a relationship of an imaginary component of AC transverse susceptibility to different DC field strengths.

24. (Currently Amended) A system for determining anisotropy field distribution and volume distribution in a magnetic sample, the system comprising:

an electromagnet for applying a DC magnetic field over a range of field strengths to the sample in a direction perpendicular to an easy axis of magnetization of the sample;

an AC coil for applying an AC magnetic field to the sample in a direction parallel to the easy axis of magnetization of the sample;

a magneto-optic probe for measuring a magneto-optic Kerr effect exhibited by the sample to produce a time-varying measurement signal;

signal processing circuitry for separating real and imaginary components of the measurement signal; and

a computer for deriving separate anisotropy field distribution and volume distribution values based upon differing sensitivity of the imaginary component of the measurement signal to anisotropy field and volume distributions at different DC field strengths.

25. (Original) The system of claim 24 and further comprising:

a function generator that provides an AC drive signal to the AC coil.

26. (Original) The system of claim 25 wherein the signal processing circuitry includes a lock-in amplifier.

27. (Original) The system of claim 26 wherein the lock-in amplifier separates the real and imaginary components based upon the measurement signal and a signal from the function generator.

28. (Original) The system of claim 24 wherein the magnetic sample is a granular thin film.

29. (Original) The system of claim 24 wherein the magnetic sample comprises magnetic nanoparticles.

30. (Currently Amended) The system of claim 24 wherein the easy axis of magnetization ~~magnetism~~ is perpendicular to a plane of the magnetic sample.

31. (Original) The system of claim 24 wherein the easy axis of magnetization lies in a plane of the magnetic sample.